

# Fossil Fuels

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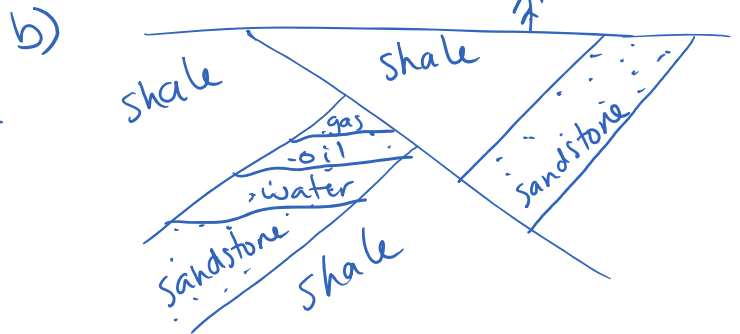
- energy sources formed from ancient plants or animals

## Petroleum (Oil)

Formation: marine micro-organisms are rapidly buried (so no decay) in ocean muds. Over time with some pressure from over-lying layers and  $50-100^{\circ}\text{C}$  temps, the mud turns to shale. Hydrocarbons break down during formation from complex large ones to smaller simple ones. Over 1000s of years the oil is squeezed out of the impermeable shale into permeable sandstone or limestone.

Oil Traps:

- impermeable (no flow) cap rock - shale
- porous (space) + permeable (flow) reservoir rock - sandstone or limestone
- density determines order { gas, oil, water



Def<sup>n</sup>s:

crude oil - petroleum as it come out of the well,  
before being refined

natural gas (gaseous hydrocarbons) and  
oil (liquid hydrocarbons) form the same way.

1 - natural gas

oil (liquid hydrocarbons)

methane - most common compound of natural gas

From crude oil we get: diesel fuel, lubricants, oil, gas, methane, but not methanol (this comes from distillation of wood)

## Coal

Formation: vegetation falls into swamps and with time and pressure coal is formed

Types:

peat → lignite → subbituminous → bituminous → anthracite  
(soft, low carbon) (hard, high carbon burns hot)

## Economically Feasible to Mine?

- price of ore or resource must be high enough when sold
- high concentration in rocks; lots in one spot
- easy to access, mine, and transport out
- not going to harm environment too much while extracting.

Workbook Section F